



# Generic Routing Encapsulation Commands

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This module describes the commands used to configure generic routing encapsulation (GRE).

For detailed information about GRE concepts, configuration tasks, and examples, refer to the *L2VPN and Ethernet Services Configuration Guide for Cisco ASR 9000 Series Routers*.

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# bandwidth

To set the tunnel interface bandwidth, use the **bandwidth** command in interface configuration mode. To undo the tunnel interface bandwidth that is set, use the **no** form of this command.

**bandwidth** *kbps*  
**no bandwidth** *kbps*

<b>Syntax Description</b>	<i>kbps</i> Interface bandwidth in kilobits per second (kbps). The range is from 0 to 4294967295. The default value is 100.
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<b>Command Default</b>	None
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<b>Command Modes</b>	interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	interface	read, write

This example shows how to set the bandwidth of the tunnel interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 6677
RP/0/RSP0/CPU0:router(config-if)# bandwidth 56789
```

## description (GRE)

To specify the description of any interface, use the **description** command in the interface configuration mode. To undo the specified description, use the **no** form of the command.

**description** *description-name*  
**no description**

<b>Syntax Description</b>	<i>description-name</i> Description of the Interface.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Interface Configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	interface	read, write

The following output shows how to specify the description of an interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 789
RP/0/RSP0/CPU0:router(config-if)# description Interface
```

# ipv4 address

To set the IPv4 address of the tunnel interface, use the **ipv4 address** command in interface configuration mode. To remove the IPv4 addresses, use the **no** form of this command.

```
ipv4 address prefix subnet mask [{route-tag value | secondary [route-tag value]}]
no ipv4 address prefix subnet mask [{route-tag value | secondary [route-tag value]}]
```

Syntax Description	
<i>prefix</i>	IPv4 address of the interface.
<i>subnet mask</i>	Subnet mask of the interface.
<b>route-tag</b>	Specifies the tag associated with the IP address.
<i>value</i>	Tag value.
<b>secondary</b>	Specifies the secondary IPV4 address.

**Command Default** None

**Command Modes** Interface configuration

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task	Operations
	network	read, write
	acl	read, write

## Examples

This example shows how to set the IPV4 address with route-tag option:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)#interface tunnel-ip 67 ipv4 address 10.1.1.2 6.7.7.8
route-tag 78
```

This example shows how to set the IPV4 address with secondary option:

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)#interface tunnel-ip 67 ipv4 address 1.2.3.4 7.8.9.8  
secondary route-tag 89
```

## ipv4 mtu (LxVPN)

To set the IPv4 MTU on the tunnel interface, use the **ipv4 mtu** command in interface configuration mode. To remove the IPv4 MTU, use the **no** form of this command.

**ipv4 mtu** *size*  
**no ipv4 mtu** *size*

<b>Syntax Description</b>	<i>size</i> Size of the MTU in bytes. The range is from 68 to 65535.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.1	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	network	read, write
	acl	read, write

### Examples

This example shows how to set the IPv4 MTU:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router (config)#interface tunnel-ip 78 ipv4 mtu 78
```

## ipv6 address (LxVPN)

To set the IPv6 address of the tunnel interface, use the **ipv6 address** command in interface configuration mode. To remove the IPv6 addresses, use the **no** form of this command.

```
ipv6 {address zone {prefix length | link-local} [route-tag value] | zone/length [route-tag value]}
no ipv6 {address zone {prefix length | link-local} [route-tag value] | zone/length [route-tag value]}
```

Syntax Description	zone	Specifies the IPv6 address of the interface.
	prefix length	Specifies the length of the IPv6 address prefix, in bits. The range is from 1 to 128.
	link-local	Specifies the link-local address.
	route-tag	Specifies the tag associated with the address.
	value	Tag value. The range is from 1 to 4294967295.

**Command Default** None

**Command Modes** Interface configuration

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	network	read, write
	interface	read, write
	ipv6	read, write

### Examples

This example shows how to set the ipv6 address for a tunnel interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)#interface tunnel-ip 67 ipv6 address 10:2::3 link-local
route-tag 78
```

## ipv6 mtu (LxVPN)

To set the IPv6 MTU on the tunnel interface, use the **ipv6 mtu** command in interface configuration mode. To remove the IPv6 MTU, use the **no** form of this command.

**ipv6 mtu** *size*  
**no ipv6 mtu** *size*

<b>Syntax Description</b>	<i>size</i> Size of the MTU in bytes. The range is from 1280 to 65535.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.1	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	network	read, write
	interface	read, write
	ipv6	read, write

### Examples

This example shows how to set the IPv4 MTU:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router (config)#interface tunnel-ip 78 ipv6 mtu 3456
```



# keepalive

To enable keepalive for a tunnel interface, use the **keepalive** command. To remove keepalive, use the **no** form of this command.

```
keepalive [time_in_seconds [retry_num]]
no keepalive
```

<b>Syntax Description</b>	<i>time_in_seconds</i> Specifies the frequency (in seconds) at which keepalive check is performed. The default is 10 seconds. The minimum value is 1 second.				
	<i>retry_num</i> Specifies the number of keepalive retries before declaring that a tunnel destination is unreachable. The default is 3 retries. The minimum value is 1 retry.				
<b>Command Default</b>	None				
<b>Command Modes</b>	interface configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.2.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 4.2.0	This command was introduced.
Release	Modification				
Release 4.2.0	This command was introduced.				

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **keepalive** command to enable keepalive for a tunnel interface.

Task ID	Task ID	Operations
	interface	read, write

## Examples

The following example shows how to configure interface tunnel:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)# keepalive 30
```

## mtu (GRE)

To set the MTU size of the tunnel interface, use the **mtu** command in interface configuration mode. To undo the MTU size of the tunnel interface that is set, use the **no** form of this command.

This is a Generic Routing Encapsulation (GRE) command.

**mtu** *size*  
**no mtu** *size*

<b>Syntax Description</b>	<i>size</i> Size of MTU in bytes. The default value is 1500.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	interface	read, write

This example shows how to set the MTU size of the tunnel interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 456
RP/0/RSP0/CPU0:router(config-if)# mtu 334
```

# shutdown (GRE)

To shut down any interface, use the **shutdown** command in interface configuration mode. To start the interface, use the **no** form of the command.

This is a Generic Routing Encapsulation (GRE) command.

**shutdown**  
**no shutdown**

This command has no keywords or arguments.

---

## Command Default

None

---

## Command Modes

Interface configuration

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## Command History

Release	Modification
Release 4.2.0	This command was introduced.

---

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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## Task ID

Task ID	Operation
interface	read, write

This example shows how to shut down a given interface:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 789
RP/0/RSP0/CPU0:router(config-if)# shutdown
```

# tunnel destination

To specify a tunnel interface's destination address, use the **tunnel destination** command. To remove the destination address, use the **no** form of this command.



**Note** The tunnel will not be operational until the tunnel destination is specified.

**tunnel destination** *ip-address*  
**no tunnel destination** *ip-address*

**Syntax Description** *ip-address* Specifies the IPv4 or IPv6 address of the host destination.

**Command Default** None

**Command Modes** interface configuration

Command History	Release	Modification
	Release 4.2.0	This command was introduced.
	Release 5.2.2	The tunnel destination can be an IPv6 address.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	interface	read, write

**Examples** The following example shows how to configure interface tunnel:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)# tunnel destination 10.10.10.1
```

Related Commands	Command	Description
	<a href="#">tunnel mode, on page 20</a>	Configures the encapsulation mode of the tunnel interface.
	<a href="#">tunnel source, on page 22</a>	Sets a tunnel interface's source address.

Command	Description
<a href="#">tunnel tos, on page 24</a>	Specifies the value of the TOS field in the tunnel encapsulating packets.
<a href="#">tunnel ttl, on page 25</a>	Configures the Time-To-Live (TTL) for packets entering the tunnel.

# tunnel key

To configure the key value for packets sent over a tunnel, use the **tunnel key** command. To delete the configured key value, use the **no** form of this command.

**tunnel key** *key-value*  
**no tunnel key** *key-value*

<b>Syntax Description</b>	<i>key-value</i> Specifies the tunnel key value. Range is from 0 to 4294967295.
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<b>Command Default</b>	No value is configured.
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<b>Command Modes</b>	interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 5.1.1	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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- GRE tunnel key feature is supported only on Cisco ASR 9000 Enhanced Ethernet line cards. It is mandatory to have ingress and egress line cards as Enhanced Ethernet line cards.
- GRE tunnel keepalive is not supported with tunnel key. If the configuration for the GRE keepalives and tunnel key are present at the same time, the tunnel is brought down and a warning message is displayed.
- For a given router, either the same key or different keys can be configured under multiple GRE tunnels.
- Different traffic streams passing through the same GRE tunnel contain the same GRE key configured for that tunnel.

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	interface	read, write
	tunnel	read, write

This example shows how to configure the tunnel key value at the GRE transmitter and receiver end:

```
!Local GRE Interface
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RSP0/CPU0:router(config-if)#ipv4 address 101.0.9.1 255.255.255.0
RP/0/RSP0/CPU0:router(config-if)# tunnel key 10
RP/0/RSP0/CPU0:router(config-if)# tunnel tos 96
RP/0/RSP0/CPU0:router(config-if)# tunnel source Loopback10
RP/0/RSP0/CPU0:router(config-if)# tunnel destination 33.0.9.33
```

```
!  
  
!Remote GRE Interface  
  
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 10  
RP/0/RSP0/CPU0:router(config-if)# ipv4 address 101.0.9.2 255.255.255.0  
RP/0/RSP0/CPU0:router(config-if)# tunnel key 10  
RP/0/RSP0/CPU0:router(config-if)# tunnel tos 96  
RP/0/RSP0/CPU0:router(config-if)# tunnel source Loopback10  
RP/0/RSP0/CPU0:router(config-if)# tunnel destination 11.0.9.11  
  
!
```

# tunnel key-ignore

To ensure that the decapsulation router skips GRE key validation before accepting the packet, use the **tunnel key-ignore** command. To remove the tunnel key ignore feature, use the **no** form of this command.

**tunnel key-ignore**  
**no tunnel key-ignore**

**Syntax Description** This command has no keywords or arguments.

**Command Default** Tunnel key-ignore is disabled.

**Command Modes** interface configuration

Command History	Release	Modification
	Release 5.1.1	This command was introduced.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Do not configure any key value under GRE tunnel that has tunnel key-ignore feature enabled. This is because the configured tunnel key overrides the tunnel key-ignore feature. As a result, packets that arrive with configured key value are accepted and undergo further processing at the decapsulation router, while the remaining packets without the key value are dropped.

Task ID	Task ID	Operation
	interface	read, write
	tunnel	read, write

This example shows how to configure the tunnel key-ignore feature at the GRE transmitter and receiver ends:

```
!Local GRE Interface
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RSP0/CPU0:router(config-if)# ipv4 address 101.0.9.1 255.255.255.0
RP/0/RSP0/CPU0:router(config-if)# tunnel key-ignore
RP/0/RSP0/CPU0:router(config-if)# tunnel tos 96
RP/0/RSP0/CPU0:router(config-if)# tunnel source Loopback10
RP/0/RSP0/CPU0:router(config-if)# tunnel destination 33.0.9.33
!

!Remote GRE Interface

RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router# interface tunnel-ip 10
```



```
RP/0/RSP0/CPU0:router#ipv4 address 101.0.9.2 255.255.255.0
RP/0/RSP0/CPU0:router# tunnel key-ignore
RP/0/RSP0/CPU0:router# tunnel tos 96
RP/0/RSP0/CPU0:router# tunnel source Loopback10
RP/0/RSP0/CPU0:router# tunnel destination 11.0.9.11

!
```

# tunnel dfbit

To configure the DF bit setting in the tunnel transport header, use the **tunnel dfbit** command. To revert to the default DF bit setting value, use the **no** form of this command.

```
tunnel dfbit {disable | copy}
no tunnel dfbit
```

## Syntax Description

### Syntax Description

**disable** Disables the DF bit in the outer packet. This allows the outer packet to be fragmented, if required.

**copy** Copies the DF bit value from the inner packet to the outer packet.

**Note** This is valid only for an IPv4 transport network in an IP in IP tunnel.

## Command Default

The DF bit value in the outer packet is disabled. This allows outer packet fragmentation, if required.

## Command Modes

interface configuration

## Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 5.3.1	The <b>copy</b> option is supported.

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Copying the DF bit value from the inner packet to the outer packet is only supported for an IPv4 transport network in an IP in IP tunnel. If **copy** option is configured, you cannot configure an IP in IP tunnel over an IPv6 transport network.

## Task ID

### Task ID Operations

interface read,  
write

## Examples

The following example shows how to enable fragmentation over an interface tunnel.

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)# tunnel dfbit disable
```

Related Commands	Command	Description
	<a href="#">tunnel destination, on page 12</a>	Specifies a tunnel interface's destination address.
	<a href="#">tunnel mode, on page 20</a>	Configures the encapsulation mode of the tunnel interface.
	<a href="#">tunnel source, on page 22</a>	Sets a tunnel interface's source address.
	<a href="#">tunnel tos, on page 24</a>	Specifies the value of the TOS field in the tunnel encapsulating packets.
	<a href="#">tunnel ttl, on page 25</a>	Configures the Time-To-Live (TTL) for packets entering the tunnel.

## tunnel mode

To configure the encapsulation mode of the tunnel interface, use the **tunnel mode** command. To revert the encapsulation to the default IPv4 GRE tunnel mode, use the **no** form of this command.

```
tunnel mode {gre {ipv4 | ipv6} | ipv4 | ipv6}
no tunnel mode
```

### Syntax Description

Syntax Description		
gre	ipv4	Specifies the tunnel as a GRE tunnel over an IPv4 transport network.
gre	ipv6	Specifies the tunnel as a GRE tunnel over an IPv6 transport network.
ipv4		Specifies the tunnel as an IP in IP tunnel over an IPv4 transport network.
ipv6		Specifies the tunnel as an IP in IP tunnel over an IPv6 transport network.

### Command Default

The default tunnel mode is set as a GRE tunnel over an IPv4 transport network.

### Command Modes

interface configuration

### Command History

Release	Modification
Release 4.2.0	This command was introduced.
Release 5.2.2	Support for GRE tunnel on an IPv6 transport network.
Release 5.3.1	Support for IP in IP tunnels.

### Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

### Task ID

Task ID	Operations
interface	read, write

## Examples

The following example shows how to configure interface tunnel:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)#tunnel mode gre ipv4
```

## Related Commands

Command	Description
<a href="#">tunnel destination, on page 12</a>	Specifies a tunnel interface's destination address.
<a href="#">tunnel source, on page 22</a>	Sets a tunnel interface's source address.
<a href="#">tunnel tos, on page 24</a>	Specifies the value of the TOS field in the tunnel encapsulating packets.
<a href="#">tunnel ttl, on page 25</a>	Configures the Time-To-Live (TTL) for packets entering the tunnel.

# tunnel source

To set a tunnel interface's source address, use the **tunnel source** command. To remove the source address, use the **no** form of this command.



**Note** The tunnel will not be operational until the tunnel source is specified.

```
tunnel source {interface_name | ip-address}
no tunnel source {interface_name | ip-address}
```

Syntax Description	
<i>interface_name</i>	Specifies the name of the interface whose IP address will be used as the source address of the tunnel. The interface name can be of a loopback interface or a physical interface.
<i>ip-address</i>	Specifies the IPv4 or IPv6 address to use as the source address for packets in the tunnel.

**Command Default** None

**Command Modes** interface configuration

Command History	Release	Modification
	Release 4.2.0	This command was introduced.
	Release 5.2.2	The tunnel source can be an IPv6 address.

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

It is recommended that the tunnel source is identified using the interface ID and not the IP address. Using the interface ID enables the router to mark the tunnel as down when the interface is down and the routing protocol tries to find and use an alternate route to the tunnel route.

Task ID	Task ID	Operations
	interface	read, write

**Examples** The following example shows how to configure interface tunnel:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)# tunnel source 10.10.10.1
```

Related Commands	Command	Description
	<a href="#">tunnel destination, on page 12</a>	Specifies a tunnel interface's destination address.
	<a href="#">tunnel mode, on page 20</a>	Configures the encapsulation mode of the tunnel interface.
	<a href="#">tunnel tos, on page 24</a>	Specifies the value of the TOS field in the tunnel encapsulating packets.
	<a href="#">tunnel ttl, on page 25</a>	Configures the Time-To-Live (TTL) for packets entering the tunnel.

# tunnel tos

To specify the value of the TOS field in the tunnel encapsulating packets, use the **tunnel tos** command. To return to the default TOS value, use the **no** form of this command.

**tunnel tos** *tos\_value*  
**no tunnel tos** *tos\_value*

<b>Syntax Description</b>	<i>tos_value</i> Specifies the value of the TOS field in the tunnel encapsulating packets. The TOS value ranges between 0 to 255.
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<b>Command Default</b>	Copies the TOS/COS bits of the internal IP header to the GRE IP header. In case of labeled payload, EXP bits are copied to TOS bits of the GRE IP header.
------------------------	---

<b>Command Modes</b>	interface configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.

<b>Usage Guidelines</b>	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	interface	read, write

<b>Examples</b>	The following example shows how to configure interface tunnel:
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```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400
RP/0/RSP0/CPU0:router(config-if)# tunnel tos 100
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">tunnel destination, on page 12</a>	Specifies a tunnel interface's destination address.
	<a href="#">tunnel mode, on page 20</a>	Configures the encapsulation mode of the tunnel interface.
	<a href="#">tunnel source, on page 22</a>	Sets a tunnel interface's source address.
	<a href="#">tunnel ttl, on page 25</a>	Configures the Time-To-Live (TTL) for packets entering the tunnel.



# tunnel ttl

To configure the Time-To-Live (TTL) for packets entering the tunnel, use the **tunnel ttl** command. To undo the configuration, use the **no** form of this command.

```
tunnel ttl ttl_value
no tunnel ttl ttl_value
```

<b>Syntax Description</b>	<i>ttl_value</i> Specifies the value of TTL for packets entering the tunnel. The TTL value ranges between 1 to 255.	
<b>Command Default</b>	The default TTL value is set to 255.	
<b>Command Modes</b>	interface configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.0	This command was introduced.
<b>Usage Guidelines</b>	<p>To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.</p> <p>This command specifies the Time-To-Live for packets entering the tunnel so that the packets are not dropped inside the carrier network before reaching the tunnel destination.</p>	
<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	interface	read, write
<b>Examples</b>	<p>The following example shows how to configure interface tunnel:</p> <pre>RP/0/RSP0/CPU0:router# configure RP/0/RSP0/CPU0:router(config)# interface tunnel-ip 400 RP/0/RSP0/CPU0:router(config-if)# tunnel source 10.10.10.1</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<a href="#">tunnel destination, on page 12</a>	Specifies a tunnel interface's destination address.
	<a href="#">tunnel mode, on page 20</a>	Configures the encapsulation mode of the tunnel interface.
	<a href="#">tunnel tos, on page 24</a>	Specifies the value of the TOS field in the tunnel encapsulating packets.

Command	Description
<a href="#">tunnel source, on page 22</a>	Sets a tunnel interface's source address.

# tunnel vrf

To specify the virtual routing and forwarding (VRF) instance of the interfaces of the tunnel endpoints, use the **tunnel vrf** command in tunnel interface configuration mode. To disassociate a VRF from the tunnel endpoints, use the **no** form of this command.

**tunnel vrf** *vrf-name*

## Syntax Description

*vrf-name* The name of the VRF instance.

## Command Default

The tunnel addresses are looked up in the default VRF instance, that is, the global routing table.

## Command Modes

Interface configuration

## Command History

Release	Modification
Release 5.2.0	This command was introduced.

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

## Task ID

Task ID	Operation
<b>tunnel</b>	read, write
<b>interface</b>	read, write

## Example

The following example shows the tunnel "tunnel-ip1" endpoints associated with the VRF instance "blue".

```
RP/0/RSP0/CPU0:router(config)# interface tunnel-ip1
RP/0/RSP0/CPU0:router(config-if)# ipv4 address 10.3.3.3 255.255.255.0
RP/0/RSP0/CPU0:router(config-if)# keepalive 5 3
RP/0/RSP0/CPU0:router(config-if)# tunnel mode gre ipv4
RP/0/RSP0/CPU0:router(config-if)# tunnel source Loopback0
RP/0/RSP0/CPU0:router(config-if)# tunnel destination 10.5.5.5
RP/0/RSP0/CPU0:router(config-if)# tunnel vrf blue
```

tunnel vrf